




RJEŠENJA ISPITA DRŽAVNE MATURE IZ **KEMIJE**  
U ŠKOLSKOJ GODINI 2024./2025. (1. ROK)

BROJ ZADATKA	TOČAN ODGOVOR
1.	D
2.	C
3.	D
4.	D
5.	A
6.	C
7.	C
8.	A
9.	D
10.	A
11.	D
12.	B
13.	C
14.	D
15.	A
16.	A
17.	C
18.	B
19.	C
20.	B
21.	C
22.	A
23.	A
24.	C
25.	B
26.	D
27.	C
28.	A
29.	D
30.	D
31.	A
32.	B
33.	A
34.	D
35.	C

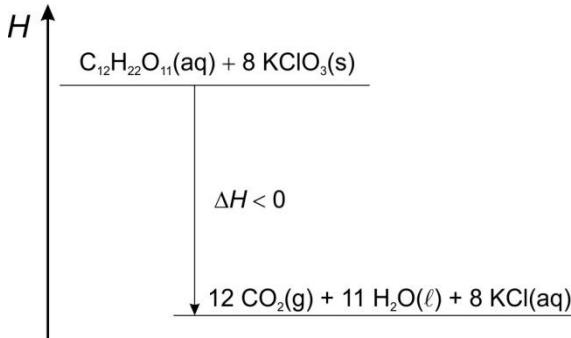


BROJ ZADATKA	TOČAN ODGOVOR	BOD
36.1.	pentan-3-on	1 BOD
36.2.	$\text{CoCl}_2$	1 BOD
37.1.	$K_s(\text{AB}) = 2,25 \times 10^{-6} \text{ mol}^2 \text{ dm}^{-6}$ $\text{AB(s)} \rightleftharpoons \text{A}^{2+}(\text{aq}) + \text{B}^{2-}(\text{aq})$ $K_s(\text{AB}) = [\text{A}^{2+}][\text{B}^{2-}]$ $[\text{AB}] = [\text{A}^{2+}] = [\text{B}^{2-}]$ $K_s(\text{AB}) = [\text{AB}]^2 = (1,5 \times 10^{-3} \text{ mol dm}^{-3})^2$ $K_s(\text{AB}) = 2,25 \times 10^{-6} \text{ mol}^2 \text{ dm}^{-6}$	1 BOD
37.2.	endoterman	1 BOD
38.1.	$w(\text{H}, \text{C}_5\text{H}_{10}) = 14,4 \%$ $w(\text{H}, \text{C}_5\text{H}_{10}) = \frac{10 \cdot A_r(\text{H})}{M_r(\text{C}_5\text{H}_{10})} = \frac{10 \cdot 1,01}{70,1} = 0,144$	1 BOD
38.2.		1 BOD
39.1.	${}^{90}_{39}\text{Y}$ , ${}^{90}\text{Y}$ , itrij-90	1 BOD
39.2.	2 (dva)	1 BOD
40.1.	$\text{HClO}(\text{aq}) + \text{H}_2\text{O}(\ell) \rightleftharpoons \text{H}_3\text{O}^+(\text{aq}) + \text{ClO}^-(\text{aq})$ $\text{HClO}(\text{aq}) \rightleftharpoons \text{H}^+(\text{aq}) + \text{ClO}^-(\text{aq})$	1 BOD

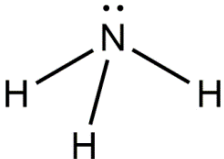


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40.2.	$[H_3O^+] = 1,7 \times 10^{-5} \text{ mol dm}^{-3}$ $[H_3O^+] = \alpha \cdot c_0(\text{HClO})$ $[H_3O^+] = 1,73 \times 10^{-3} \cdot 1,0 \times 10^{-2} \text{ mol dm}^{-3}$ $[H_3O^+] = 1,7 \times 10^{-5} \text{ mol dm}^{-3}$	1 BOD
41.1.	crvene	1 BOD
41.2.	$c(\text{H}_2\text{SO}_4) = 0,125 \text{ mol L}^{-1}$ $V(\text{NaOH})_{\text{t.e.}} = 12,5 \text{ mL}$ $n(\text{H}_2\text{SO}_4) : n(\text{NaOH}) = 1 : 2$ $n(\text{H}_2\text{SO}_4) = \frac{1}{2} \cdot n(\text{NaOH}) = \frac{1}{2} \cdot c(\text{NaOH}) \cdot V(\text{NaOH})_{\text{t.e.}}$ $c(\text{H}_2\text{SO}_4) \cdot V(\text{H}_2\text{SO}_4) = \frac{1}{2} \cdot c(\text{NaOH}) \cdot V(\text{NaOH})_{\text{t.e.}}$ $c(\text{H}_2\text{SO}_4) = \frac{c(\text{NaOH}) \cdot V(\text{NaOH})_{\text{t.e.}}}{2 \cdot V(\text{H}_2\text{SO}_4)}$ $c(\text{H}_2\text{SO}_4) = \frac{0,200 \text{ mol L}^{-1} \cdot 12,5 \text{ mL}}{2 \cdot 10,0 \text{ mL}}$ $c(\text{H}_2\text{SO}_4) = 0,125 \text{ mol L}^{-1}$	1 BOD za točno očitanje volumena u točki ekvivalencije  1 BOD za točno izračunatu množinsku koncentraciju sumporne kiseline
42.1.	$n(\text{CO}_2) = 8,79 \times 10^{-2} \text{ mol}$ $n(\text{KClO}_3) = \frac{m(\text{KClO}_3)}{M(\text{KClO}_3)} = \frac{7,19 \text{ g}}{122,6 \text{ g mol}^{-1}} = 0,0586 \text{ mol}$ $n(\text{KClO}_3) : n(\text{CO}_2) = 8 : 12$ $n(\text{CO}_2) = \frac{12 \cdot n(\text{KClO}_3)}{8} = \frac{12 \cdot 0,0586 \text{ mol}}{8} = 0,0879 \text{ mol}$ $n(\text{CO}_2) = 8,79 \times 10^{-2} \text{ mol}$	1 BOD



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42.2.	$\Delta_r H = -5,97 \times 10^3 \text{ kJ mol}^{-1}$ $n(\text{KClO}_3) = \frac{m(\text{KClO}_3)}{M(\text{KClO}_3)} = \frac{7,19 \text{ g}}{122,6 \text{ g mol}^{-1}} = 5,86 \times 10^{-2} \text{ mol}$ $\Delta H = \Delta_r H \cdot \frac{\Delta n(\text{KClO}_3)}{v(\text{KClO}_3)}$ $\Delta_r H = \frac{\Delta H \cdot v(\text{KClO}_3)}{\Delta n(\text{KClO}_3)} = \frac{-43,7 \text{ kJ} \cdot (-8)}{-5,86 \times 10^{-2} \text{ mol}} = -5,97 \times 10^3 \text{ kJ mol}^{-1}$ $\Delta_r H = -5,97 \times 10^3 \text{ kJ mol}^{-1}$	1 BOD
42.3.		1 BOD
43.1.	$\Delta E^\circ = 0,926 \text{ V}$ $\Delta E^\circ = 0,800 \text{ V} - (-0,126 \text{ V}) = 0,926 \text{ V}$	1 BOD
43.2.	$\text{Pb(s)} \rightarrow \text{Pb}^{2+}(\text{aq}) + 2 \text{ e}^-$	1 BOD
43.3.	$\text{Ag}^+$	1 BOD
44.1.	$\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$	1 BOD
44.2.	$\text{CH}_3\text{CH}_2\text{COOH}$	1 BOD
44.3.	adiciji, redukciji, hidrogeniranju	1 BOD
44.4.	I (jedan)	1 BOD



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45.1.	bijeli dim	1 BOD
45.2.	$\text{NH}_3(\text{g}) + \text{H}_2\text{O}(\ell) \rightleftharpoons \text{NH}_4^+(\text{aq}) + \text{OH}^-(\text{aq})$	1 BOD
45.3.	$\text{OH}^-$	1 BOD
45.4.		1 BOD
46.1.	$\bar{v}(\text{HNO}_3) = -\frac{\Delta c(\text{HNO}_3)}{\Delta t}, \quad \bar{v}(\text{HNO}_3) = -\frac{\Delta p(\text{HNO}_3)}{\Delta t}$	1 BOD
46.2.	$\bar{v} = 3,53 \times 10^{-7} \text{ mol dm}^{-3} \text{ s}^{-1}$ $\bar{v} = \frac{1}{4} \bar{v}(\text{NO}_2)$ $\bar{v}(\text{NO}_2) = 4 \cdot \bar{v}$ $\bar{v}(\text{NO}_2) = 4 \cdot 8,82 \times 10^{-8} \text{ mol dm}^{-3} \text{ s}^{-1}$ $\bar{v} = 3,53 \times 10^{-7} \text{ mol dm}^{-3} \text{ s}^{-1}$	1 BOD
46.3.	$[\text{H}_2\text{O}] = 3,50 \text{ mol dm}^{-3}$ $K_c = \frac{[\text{NO}_2]^4 \cdot [\text{H}_2\text{O}]^2 \cdot [\text{O}_2]}{[\text{HNO}_3]^4}$ $[\text{H}_2\text{O}] = \sqrt{\frac{K_c \cdot [\text{HNO}_3]^4}{[\text{NO}_2]^4 \cdot [\text{O}_2]}}$ $[\text{H}_2\text{O}] = \sqrt{\frac{32 \text{ mol}^3 \text{ dm}^{-9} \cdot (4,70 \text{ mol dm}^{-3})^4}{(5,40 \text{ mol dm}^{-3})^4 \cdot 1,5 \text{ mol dm}^{-3}}} = 3,499 \text{ mol dm}^{-3}$ $[\text{H}_2\text{O}] = 3,50 \text{ mol dm}^{-3}$	1 BOD
46.4.	Koncentracija $\text{O}_2$ se povećava.	1 BOD
47.1.	karbonilna, aldehidna	1 BOD



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47.2.	4 (četiri)	1 BOD
47.3.	$\pi = 7,7 \times 10^5 \text{ Pa}$ $\pi = i \cdot c \cdot R \cdot T$ $\pi = 1 \cdot 300 \text{ mol m}^{-3} \cdot 8,31 \text{ Pa m}^3 \text{ K}^{-1} \cdot \text{mol}^{-1} \cdot 310 \text{ K}$ $\pi = 772830 \text{ Pa}$ $\pi = 7,7 \times 10^5 \text{ Pa}$	1 BOD
47.4.	vodikova veza	1 BOD